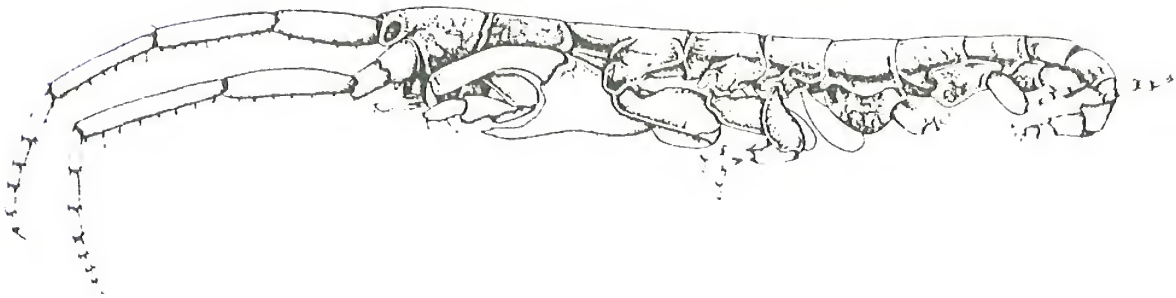
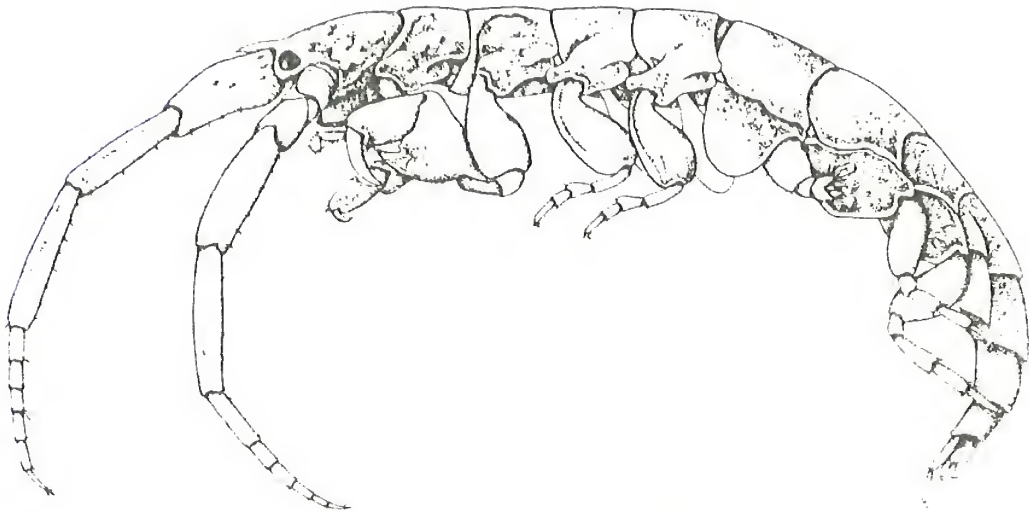


AMPHIPOD NEWSLETTER

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AMPHIPOD NEWSLETTER 16

February 1986

First, I must apologize for the long time delay between this newsletter and the last. It seems that life here has become more and more busy. I am now the Director of the Darling Center, which is the marine laboratory of the University of Maine. While this position entails much more time than expected, I am still trying to keep up with new developments in amphipod biology and systematics.

The bibliography was graciously put together, as usual, by Wim Vader. Without his devotion to this project, the A.N. would soon cease to exist.

With all the recent additions of funds, the newsletter is in a very good situation financially. I would like to thank all who have sent funds, and especially the regional collectors - editors for having taken the time to canvas the amphipodologists in their areas. Thanks also to those from countries unable to export currency for giving some funds to Jerry Barnard at the Ambleteuse meeting.

Apparently the Ambleteuse meeting went very well, with the major 'higher classification and phylogeny factions' coming to some kind of accord. Our field is much in need of more basic research and it is unfortunate to see factions developing on the basis of incomplete evidence. We will know more about how to arrange amphipods into higher categories after we describe more taxa from the large unknown regions of the world (e.g., South America and the tropics), and after we learn more about the functional significance of different morphological features (e.g., the papers dealing with prehensile pereopods and epimeral plate 3 by Vader and Moore, respectively; perhaps also the paper by Bowman & Wasmer cited in this A.N.).

This issue's cover is from Jim Lowry's recent paper on two new species of Cerapus from Samoa and Fiji. The drawings are of Cerapus oceanicus and C. pacificus drawn by Sharne Dunlop.

Best wishes for 1986.

Walpole, Maine


Les Watling

Notes and News

A letter from R. Tchardaklieva, the librarian of the Bulgaria Research Institute of Fisheries in Varna, contained the sad news of the death of a subscriber and colleague, M-e Kaneva-Abadjieva, last April. The newsletter will continue to be sent to the library of that institute.

Dr. Hiroshi Morino has also noted the passing of Dr. Ishitaro Arimoto, due to age and illness. Dr. Morino writes "his numerous research publications on the taxonomy of the Japanese Caprelliidae, culminated in the monograph 'Taxonomic Studies of Caprellids Found in the Japanese and Adjacent Waters', 229 pp. (see AN 10) have provided us a very helpful standard to this group of animals".

New subscriber, Exequiel Gonzalez Balbontin, writes: "My work with intertidal gammaridean amphipods goes slowly. I have just sent for revision a paper on Paracorophium and I am writing a revision of some Chilean Hyale. I plan to work in the near future with some samples from the Chilean subantarctic islands."

In this newsletter, at the back, you will find a complete list of all subscribers. Addresses for all subscribers are as up-to-date as I have them. All new subscribers are also included. If anyone's address is different from that listed, please let me know. Changes will be very easy to make since we are now, finally, completely computerized. The mailing list can be sorted to print mailing labels, or an address list, or can be sorted by country or state. I have done this so that the post office can more easily handle our mailing, but I thought the readers would like to know where all their colleagues are so I've compiled the following list:

Argentina	1	Japan	25	U.S.-East	36
Australia	10	Kuwait	2	U.S.-South	23
Belgium	1	Lebanon	1	U.S.-West	44
Brazil	5	Monaco	1	U.S.-Interior	3
Bulgaria	1	Morocco	1	Vietnam	1
Canada	21	New Caledonia	1	Wales	3
Chile	2	New Zealand	6	West Germany	14
Cuba	1	Norway	6	Yugoslavia	4
Czechoslovakia	1	Poland	3		
Denmark	3	Portugal	3		
East Germany	1	Romania	1		
England	17	Scotland	5		
Finland	1	South Korea	1		
France	37	Spain	2		
Guadeloupe	1	Sweden	7		
Holland	7	Thailand	2		
India	6	Turkey	1		
Ireland	7	USSR	10		
Italy	9				

POSITION WANTED: Phil Oshel writes that he is nearing completion of his Ph.D. at Memorial University of Newfoundland and is looking for a position, either at post-doctoral level or entry level faculty. He states: "experienced in SEM operation & x-ray analysis of elements (energy- & wavelength-dispersive), with experience in light & transmission electron microscopy. Interested in comparative/functional morphology and phylogeny of amphipods & malacostracans, and of crustaceans (& invertebrates) in general, especially of feeding and sensory structures."

HELP WANTED: A nematologist, Dr. S. Lorenzen, would like anyone who has noted nematodes living epibiotically on the outside of amphipods to please let him know. He would like very much to obtain a variety of specimens. He can be reached at: Zoologisches Institut, Christian-Albrechts-Universität zu Kiel, Olshausenstr. 40-60, D-2300 Kiel 1, W. Germany.

I will try to keep up with other news. We need more input from colleagues around the world about work that is happening in their regions. I would especially like to have some detailed news about work in Asia and South America. I will try to have the next A.N. ready to go about late November.

- ABEL, P.D. 1980. Toxicity of γ -hexachlorocyclohexane (Lindane) to Gammarus pulex: mortality in relation to concentration and duration of exposure. Freshw. Biol. **10**: 251-259.
- ADAMS, J., P.J. GREENWOOD & J. MALLOY. 1983. Colour variation in Gammarus pulex in relation to sex and the moult cycle. Arch. Hydrobiol. **98**: 265-271.
- ADRIKOVICS, S., L. FORRO & H. METS. 1982. The occurrence of Synurella ambulans (Muller, 1846) (Crustacea, Amphipoda) in Neusiedlersee. Sitzungsber. osterr. Akad. Wiss. (Abt. 1) **191**: 139-141.
- AGNEW, D.J. & A.C. TAYLOR. 1985. The effect of oxygen tension on the physiology and distribution of Echinogammarus pirloti (Sexton & Spooner) and E. obtusatus (Dahl) (Crustacea: Amphipoda). J. exp. mar. Biol. Ecol. **87**: 169-190.
- AHSANULLAH, M. & D.H. PALMER. 1980. Acute toxicity of selenium to three species of marine invertebrates, with notes on a continuous-flow test system. Austr. J. Mar. Freshw. Res. **31**: 795-802. (i.a., Allorchestes compressa)
- AHSANULLAH, M. & T.M. FLORENCE. 1984. Toxicity of copper to the marine amphipod Allorchestes compressa in the presence of water- and lipid-soluble ligands. Mar. Biol. **84**: 41-45.
- ALI, A. & J. LORD. 1980. Impact of experimental insect growth regulators on some non-target aquatic invertebrates. Mosquito News **40**: 564-571. (i.a. Hyalella azteca)
- ALLDREDGE, A.L. & J.M. KING. 1985. The distance demersal zooplankton migrate above the benthos: Implications for predation. Mar. Biol. **84**: 253-260.
- ALONSO, G. 1982. (Gammaropsis deseadensis sp. nov., a new amphipod from Puerto Deseado (Santa Cruz, Argentina).) Neotropica **27**: 185-189. (In Spanish, not seen)
- AMBROSE, W.G. 1984. Increased emigration of the amphipod Rhepoxynius abronius (Barnard) and the polychaete Nephtys caeca (Fabricius) in the presence of invertebrate predators. J. exp. mar. Biol. Ecol. **80**: 67-75.
- ANDRES, H.G. 1979. (Paracorophium hartmannorum, new species from the eulittoral of the Chilean Pacific coast (Crustacea, Amphipoda).) Mitt. Hamb. zool. Mus. Inst. **76**: 381-386. (In German)
- ANDRES, H.G. 1984. Zwei neue Synopiiden (Crustacea: Amphipoda: Gammaridea) aus dem warmen zentralen Nordatlantik. Mitt. Hamb. zool. Mus. Inst. **81**: 109-116. [Synopia triangula n. sp. (10°N, 27°W) & Synopia rotunda n. sp. (25°N, 27°W)]
- ANDRES, H.G. 1984. Neue Vertreter der antarktisch verbreiteten Gattung Paraceradocus Stebbing, 1899 (Crustacea: Amphipoda: Gammaridae). Mitt. hamb. zool. Mus. Inst. **81**: 85-107. [includes P. trispinosus n.sp. (S. Orkney Islands, 244-344 m), P. stenepimerus n.sp. (60°51'S, 55°33.4'W 280-294 m), P. gibber n.sp. (63°38'S, 56°17'W, 0-310 m), and additions to the descriptions of P. miersi and P. ramulus along with a key to all known species in the genus]
- ANDRES, H.G. & H.-C. JOHN. 1984. Results of some neuston net catches in the warmer Central North Atlantic: Fish larvae and selected invertebrates. Meeres. **30**: 144-154. (Not seen)
- ANKAR, S., A.-B. ANDERSIN, J. LASSIG, L. NORLING, & H. SANDLER. 1979. Methods for studying benthic macrofauna. An intercalibration between two laboratories in the Baltic Sea. Finn. Mar. Res. (246): 147-160.

- BACHELET, G., J.M. BOUCHET & J.P. LISSALDE. 1981. Les peuplements benthiques dans l'estuaire de la Gironde: biomasse, productivite et evolution structurale. *Oceanis* 6: 593-620. (with data on life history of i.a. Corophium volutator)
- BARNARD, J.L. & C.M. BARNARD. 1981. The amphipod genera Eobrolgus and Eyakia (Crustacea: Phoxocephalidae) in the Pacific Ocean. *Proc. biol. Soc. Wash.* 94: 295-313. (E. chumashi n.sp. (S. California), other species included in this genus are Paraphoxus spinosus (type) and Parharpinia pontarpioides; Eyakia consists of Paraphoxus robustus (type), Parharpinia calcarata, Parharpinia ochotica (a possible synonym of E. robusta), Paraphoxus subuncigerus and Parharpinia uncigera)
- BARNARD, J.L. & J.D. THOMAS. 1983. A new species of Amphilochus from the gorgonian Pterogorgia anceps in the Caribbean Sea. Pp. 179-187, in P. Rabinanath (ed). *Selected Papers on Crustacea*. Prof. N. Krishna Pillai Felicitation Volume. The Aquarium, Trivandrum 695 007, India. (Amphilochus pillaii n.sp. from Big Pine Key, Florida, USA, also occurs in Belize.)
- BARNARD, J.L. & M.M. DRUMMOND. 1984. Redescription of Notoediceros tasmaniensis Bousfield and a note on the synonymy of Warreyus Barnard & Drummond and Exoediceroides Bousfield (Crustacea: Amphipoda: Exoedicerotidae). *Proc. R. Soc. Vict.* 96: 25-32. (With a key to the 8 genera of Exoedicerotidae. Notoediceros tasmaniensis has a uniramous ur. 3. Exoediceroides maximus is a junior synonym of Oediceros latrans Haswell, 1879.)
- BARNARD, J.L. & M.M. DRUMMOND. 1984. A new paracalliopiid, Katocalliopie kutyeri gen. et sp. nov. (Crustacea: Amphipoda) from Queensland. *Proc. R. Soc. Vict.* 96: 147-153. (includes a key to the genera of the Family Paracalliopidae)
- BARNARD, J.L. & J.D. THOMAS. 1984. Two new species of the Siphonoecetes complex from the Arabian Gulf and Borneo. *Proc. biol. Soc. Wash.* 97: 864-881. (Siphonoecetes arabicus n. sp. from Dhahran, the Arabian Gulf, and Borneoecetes wongi n. gen. n.sp. from Borneo.)
- BARNARD, J.L. & J. CLARK. 1985. A new sea-cave amphipod from Bermuda (Dulichidae). *Proc. biol. Soc. Wash.* 98: 1048-1053. (Describes Podobothrus bermudensis n. sp.).
- BARNES, R.S.K., A. WILLIAMS, C. LITTLE, & A.S. DOREY. 1979. An ecological study of the Swanpool, Falmouth. 4. Population fluctuations of some dominant macrofauna. Pp. 177-197, in R.L. Jefferies & A.J. Davy (eds.) *Ecological processes in coastal environments*. Blackwell Scientific Publishers, Oxford.
- BECHLER, D.L. 1985. Structure and foraging behavior in hypogean crustacean assemblages. *Hydrobiologia* 127: 203-211. (A Missouri study, involving Gammarus troglophilus and Bactrurus brachycaudus)
- BECKLEY, L.E. 1980. Distribution and tidal rhythmicity of a littoral amphipod. *S. Afr. J. Zool.* 15: 199-200. (Hyale grandicornis)
- BECKLEY, L.E. & A. McLACHLAN. 1980. Studies on the littoral seaweed epifauna of St. Croix Island. 2. Composition and summer standing stock. *S. Afr. J. Sci.* 15: 170-176.
- BEDFORD, A.P. & P.G. MOORE. 1984. Macrofaunal involvement in the sublittoral decay of kelp debris: The detritivore community and species interactions. *Est. coast. Shelf Sci.* 18: 98-112. (i.a. Gammarus locusta.)
- BELLAN-SANTINI, D. 1983. Donneés preliminaires sur la faune des crustacés amphipodes installée dans des réseaux cavitaires artificiels. Pp. 99-104 in *Journee d'Etudes sur les aspects scientifiques concernant les récifs*

- artificiels et la mariculture suspendue, Cannes, 7 Dec. 1982. CIESM, Monaco. (Not seen)
- BELLAN-SANTINI, D. 1983. Distribution des Ampelisca (Crustacea, Amphipoda) de Mediterranee. Pp. 155-161 in P. Rabindranath (ed.). Selected Papers on Crustacea. Prof. Dr. N. Krishna Pillai Felicitation Volume. The Aquarium, Trivandrum.
- BELLAN-SANTINI, D. 1985. Amphipodes des expeditions antarctiques chiliennes dans les iles Shetland du Sud (I. Les Ampeliscidae). Boll. Mus. Civ. Stor. Nat. Verona 10(1983): 241-262. (Describes and illustrates Ampelisca dallenei n.sp. (64°52'S, 62°57'W), A. lenoldei n.sp. (62°57'S, 60°36'W) and Byblis subantarctica.)
- BELLAN-SANTINI, D. 1985. Amphipodes profonds de Mediterranee (Campagnes Biomedes I, Polymede I et II). Boll. Mus. Civ. Stor. Nat., Verona 10(1983): 263-313. (Deals with 50 spp. of which the following are described and illustrated: Scopelocheirus polymedus n.sp., Tmetonyx palpiserrata n. sp., Vallettietta punctata n.sp., Pardalisca brachydactyla n.sp., P. mediterranea n.sp., Phippsiella pseudophippsia n.sp., Syrrhoites capricornia n.sp., and S. cornuta n.sp. All new species are from deep water in the western Mediterranean.)
- BELLAN-SANTINI, D. & J.C. DAUVIN. 1981. Description d'une nouvelle espece d'Ampelisca des cotes francaises. Crustaceana 40: 242-252. (A. americana n.sp. from the Bay of Morlaix in N. Brittany)
- BELLAN-SANTINI, D. & J.C. MARQUES. 1984. Contribution a l'etude des amphipodes des cotes du Portugal. Cienc. Biol. (Portugal). 5: 131-149. (71 species of amphipods were dealt with).
- BELLAN-SANTINI, D. & J.C. DAUVIN. 1985. Morphologie et microstructure d'une formation cuticulaire enigmatique chez une nouvelle Ampelisca (Crustacea Amphipoda). C.r. Acad. Sci. Paris. (Ser. 3.9) 300, 389-393. (The enigmatic structure is found on the dorsal part of the two anterior pleon segments. Its function is not clear. The species, from NW Spain, is new and will be described elsewhere.)
- BENNETT, B., C.L. GRIFFITHS, M.-L. PENRITH. 1983. The diets of littoral fish from the Cape Peninsula. S. Afr. J. Zool. 18: 343-352.
- BERENTS, P.B. 1985. Warragaia rintouli n.gen., n.sp. (Amphipoda: Urohaustoriidae) from New South Wales, Australia. Rec. austr. Mus. 36: 253-258. (Type locality: Jervis Bay, NSW, where the 1980 Crustacea Conference had its excursion.)
- BERZIN, A.A. & L.P. VLASOVA. 1982. Fauna of the Cetacea Cyamidae (Amphipoda) of the world ocean. Invest. Cetacea 13: 149-164. (with Cyamus antarcticensis Vlasova n.sp. from Orcinus arca from North Prydz Bay, Antarctic, and a survey of all known Cyamid species arranged by hosts.)
- BIAS, R. 1981. Kinetik der Cadmium-Akkumulation in euryhalinen Amphipoden des Elbe-Aestuars. Experimente mit Corophium volutator (Pallas) (Amphipoda, Corophiidae). Arch. Hydrobiol., Suppl. 61: 84-152.
- BIERNBAUM, C.K. 1981. Seasonal changes in the amphipod fauna of Microciona prolifera (Ellis and Solander) (Porifera: Demospongia) and associated sponges in a shallow salt marsh creek. Estuaries 4: 85-96.
- BIRKHEAD, T.R. & K. CLARKSON. 1980. Mate selection and precopulatory guarding in Gammarus pulex. Z. Tierpsychol. 52: 365-380.
- BLOCK, W., 1984. A comparative study of invertebrate supercooling at Signy Island, maritime Antarctic. Br. antarct. Surv. Bull. (64): 67-76. (With data on Oradarea bidentata, O. ocellata, Bovallia gigantea, Pariphimedia integricauda, Paradexamine fissicauda, and Cheirimedon femoratus.)

- BLOKHIN, S.A. & V.A. PAVLYUCHKOV. 1983. Feeding of Gray Whales off Chukotka. Rep. int. Whaling Comm. 33: 549-552. (Mostly Amphipoda, of which 55 spp. are now known to be eaten by these whales.)
- BOGATOV, V.V. 1984. (Importance of bottom dwelling animals in biological production processes in rivers.) *Ekologiya* (1984-3), 52-60. (In Russian, not seen. Data on i.a. Gammarus lacustris.)
- BOLT, S.R.L. 1985. Urine clearance rates and apparent permeability of Gammarus duebeni exposed to varying conditions. *J. exp. Biol.* 114: 673-678.
- BOLT, S.R.L., M.E. DAWSON, C.B.E. INMAN, & A.P.M. LOCKWOOD. 1980. Variation of apparent permeability to water and sodium transport in Gammarus duebeni exposed to fluctuating salinities. *Comp. Biochem. Physiol.* 67 B: 465-473.
- BOROWSKY, B. 1980. The physiological control of reproduction in Microdeutopus gryllotalpa (Crustacea: Amphipoda). 1. The effects of exogenous ecdysterone on the female molt and behavioral cycles. *J. exp. Zool.* 213: 399-404.
- BOROWSKY, B. 1983. The existence of a water-borne male attractant secreted by receptive females of the amphipod crustacean Microdeutopus gryllotalpa (Costa). *Am. Zool.* 23: ?. (Abstract only)
- BOROWSKY, B. 1984. The use of the males' gnathopods during precopulation in some gammaridean amphipods. *Crustaceana* 47: 245-250.
- BOROWSKY, B. 1984. Effect of receptive females' secretions on some male reproductive behaviors in the amphipod crustacean Microdeutopus gryllotalpa. *Mar. Biol.* 84: 183-187.
- BOROWSKY, R. 1984. Environmental control of amylase phenotype in amphipods of the genus Gammarus. *Biol. Bull.* 167: 647-657.
- BOROWSKY, R., B. BOROWSKY & H. MILANI. 1983. Amylase in the amphipod Gammarus palustris: a chemosensory hypothesis to account for heterozygote deficiency and differential food choice. *Am. Zool.* 23: ?. (Abstract only)
- BORTKEVICH, L.V. 1982. (Corophiidae in the benthos of the lower reaches of the Ingulets River.) *Gidrobiol. Zh.* 18(4): 97-99. (In Russian, not seen)
- BOUSFIELD, E.L. 1984. Recent advances in the systematics and biogeography of landhoppers (Amphipoda: Talitridae) of the Indo-Pacific region. pp. 171-210, in F.J. Radovsky, P.H. Raven and S.H. Sohier (eds.) *Biogeography of the tropical Pacific*. Bishop Mus. Spec. Pub. No. 72 (also published by Association of Systematics Collections). (Includes capsule diagnoses of several new taxa: Eorchestia, n. gen. (type: Orchestia rectipalma K.H. Barnard 1940; and includes several undescribed species from New Zealand and southeastern Australia); Microrchestia, n. gen. (type: Parorchestia macrochela Bousfield 1971; and additional undescribed species from intertidal habitats in mangrove swamps from South America, Africa, Madagascar, India, and the Bismarck Archipelago); Chiltonorchestia, n. gen. (type: Parorchestia pusilla Chevreux 1915; also includes P. pusilla (Chevreux), P. sarasini (Chevreux), O. starmuhlneri (Ruffo and Paiotta) and 3 undescribed from New Caledonia freshwaters); Uhlorchestia, n. gen. (type: Orchestia uhleri Shoemaker 1930; and 1 additional species); Chelorchestia, n. gen. (type: Orchestia costaricana Stebbing, 1906; and additional species O. darwinii, O. vaggala (Bowman) and several undescribed species from mangrove swamps of Florida and the Caribbean to Argentina; Tethorchestia, n. gen. (type: T. antillensis, n. sp. from Yucatan, Mexico sand beach); Floresorchestia, n. gen. (type: Orchestia floresiana Weber 1892; with 11 additional species); Protaustrotroides, n. gen. (type: P.

- victoriae, n. sp. from Apollo Bay, Victoria, Australia); Hawaiiorchestia, n. gen. (type: Orchestia hawaiiensis Dana 1853; with at least 2 additional undescribed species from Hawaii); Caribotroides, n. gen. (type: C. jamaicensis, n. sp. from Jamaica at elevation of 1200 m.)
- BOWMAN, Th.E. 1984. Stalking the wild crustacean: the significance of sessile and stalked eyes in phylogeny. *J. Crust. Biol.* **4**: 7-11.
- BOWMAN, Th.E., 1985. The correct identity of the pelagic amphipod Primno macropa, with a diagnosis of Primo abyssalis (Hyperiidea: Phrosinidae). *Proc. Biol. Soc. Wash.* **98**: 121-126. (The real P. macropa is redescribed from S. Pacific material. The N. Pacific form earlier thought to be P. macropa is now called Primno abyssalis Bowman, in Fulton 1968.)
- BOWMAN, Th.E. & F. PHILLIPS. 1984. Bioluminescence in the freshwater amphipod, Hyaletella azteca, caused by pathogenic bacteria. *Proc. Biol. Soc. Wash.* **97**: 526-528.
- BOWMAN, Th.E. & R.A. WASMER. 1984. The deep-sea amphipod Paracyphocaris praedator (Gammaridea: Lysianassidae) associated with the pelagic shrimp Oplophorus novaezeelandica as an egg-mimic. *Proc. Biol. Soc. Wash.* **97**: 844-848.
- BOWMAN, Th.E., S.P. GARNER, R.R. HESSLER, T.M. ILIFFE, & H.L. SANDERS. 1985. Mictacea, a new order of Crustacea Peracarida. *J. crust. Biol.* **5**: 74-78. (A new order erected for Hirsutia bathyalis Sanders, Hessler & Garner, 1985, from the deep tropical Atlantic, and Mictocaris halope Bowman & Iliffe, 1985, from a Bermuda sea cave.)
- BRATTON, J.H. 1982. Corophium curvispinum Sars (Crustacea: Amphipoda) recorded in the London area. *London Nat.* **61**: 62.
- BRAUER, R.W., R. JORDAN, R.O. ROER, E.E. WILLIAMS, M.Y. BEKMAN, G.I. GOLZII, & V.G. SIDELYOVA. 1984. Pressure effects on thermal preference behaviour in gammarid amphipods from 600-1000 m in Lake Baikal. *J. therm. Biol.* **9**: 205-213.
- BROWN, A.F. & M. DIAMOND. 1984. The consumption of rainbow trout (Salmo gairdnerii) eggs by macroinvertebrates in the field. *Freshw. Biol.* **14**: 211-215. (i.a. Gammarus pulex)
- BRUSCA, G.J. 1981. A reexamination of some hyperiid amphipods from Hawaii. *Pacif. Sci.* **34**: 277. (Corrections to his 1973 paper)
- BRYANT, V., D.S. McLUSKY, K. RODDIE, & D.M. NEWBERY. 1984. Effect of temperature and salinity on the toxicity of chromium to three estuarine invertebrates (Corophium volutator, Macoma balthica, Nereis diversicolor). *Mar. Ecol. Progr. Ser.* **20**: 137-149.
- BRYANT, V., D.M. NEWBERY, D.S. McLUSKY, & R. CAMPBELL. 1985. Effect of temperature and salinity on the toxicity of arsenic to three estuarine invertebrates (Corophium volutator, Macoma balthica, Tubifex costatus). *Mar. Ecol. Progr. Ser.* **24**: 129-137.
- BRYANT, V., D.M. NEWBERY, D.S. McLUSKY, & R. CAMPBELL. 1985. Effect of temperature and salinity on the toxicity of nickel and zinc to two estuarine invertebrates (Corophium volutator, Macoma balthica). *Mar. Ecol. Progr. Ser.* **24**: 139-153.
- BRZEZINSKA-BLASZCZYK, E. & K. JAZDZEWSKI. 1980. Reproductive cycles of Gammarus fossarum Koch (Crustacea, Amphipoda) in different thermic conditions. *Acta Univ. Iod. (2)* **33**: 129-153.
- BUDNIKOVA, L.L. 1984. (Fauna, ecology and biogeographical structure of amphipods (Amphipoda, Gammaridea) in the coastal zone of the Sikhote-Alin Biosphere State Nature Reserve.) Pp 69-80 in A.I. Kafanov (ed.).

- Hydrobiological research of bays and inlets of Primorye. Far East Science Center, Akad. Nauk SSSR, Vladivostok. (In Russian. With many quantitative data on zonation and biomass. The reserve covers the coast N. of Vladivostok.)
- BUDNIKOVA, L.L., 1985. (A new species from the family Photidae (Amphipoda, Gammaroidea) from the costal zone of the Sikhote-Alin biosphere state reserve (Sea of Japan.) Zool. Zh. 64, 455-459 (in Russian. Photis albus n.sp.)
- BUDNIKOVA, L.L. & V.A. PAVLYUCHKOV. 1984. (Fauna and ecology of amphipods (Amphipoda, Gammarida) in the open part of Possjet Bay.) Pp 46-51 in A.I. Kafanov (ed.). Hydrobiological research of bays and inlets of Primorye. Far East Science Center, Akad. Nauk USSR, Vladivostok. (In Russian. Possjet Bay is near the border to North Korea.)
- BUICKEMA, A.L. & E.F. BENFIELD. 1980. Effects of pollution on freshwater invertebrates. J. Water Poll. Control Fed. 52: 1670-1686.
- BULNHEIM, H-P., 1984. Physiological responses of various Gammarus species to environmental stress. Limnologica (Berlin) 15, 461-467.
- BULNHEIM, H-P., 1984. Biochemisch-genetische Untersuchungen zur Art-und Populations-differenzierung bei Amphipoden und Isopoden. Zool. Beitr. N.F. 28: 349-368. (Gammarus and Idotea species)
- BULNHEIM, H-P., 1985. Genetic differentiation between natural populations of Gammarus tigrinus (Crustacea, Amphipoda) with reference to its range extension in European continental waters. Arch. Hydrobiol. 102: 273-290.
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